4.1 GENERAL REQUIREMENTS

- 4.1.1 Streets, General: No subdivision shall be approved unless the area to be subdivided shall have frontage on and access from an existing public street which is located with the boundary of the Town of Granby which is suitably improved and paved or shall have frontage on a street shown upon a map approved by the Commission and recorded in the Town Clerk's office. Such street or highway must be suitably improved as required by the appropriate regulations and specifications or be secured by a performance bond. Proposed streets and sidewalks shall be in harmony with existing or proposed arterial streets, as shown on the Town Comprehensive Plan of Development, especially with regard to safe intersections with such thoroughfares.
- 4.1.2 Street Grading and Improvement: Streets shall be related appropriately to the topography. Local roads shall be curved wherever possible, to avoid conformity of lot appearance. All streets shall be arranged to obtain as many as possible of the building sites at, or above, the grades of the streets. Grades of streets shall conform as closely as possible to the original topography. A combination of steep grades and curves shall be avoided. Specific standards are contained in these Regulations.
- **4.1.3 Traffic Circulation Plan:** All streets shall be properly integrated with the existing, and proposed system of thoroughfares, and dedicated rights-of-way as established by the Town and/or the Town of Granby Plan of Development. Additionally, all thoroughfares shall be properly related to specific districts, schools, churches and shopping centers, to population densities and to the pattern of existing and proposed land uses.
- **4.1.4 Future Street Stubs:** Fifty (50) foot wide rights-of-way leading from Subdivision streets to adjoining properties to provide for a coordinated street system; shall be included.

It shall be the responsibility of the subdivider to:

- **4.1.4.1** Donate the land for these street stub rights-of-way to the Town.
- **4.1.4.2** Bring these street stub rights-of-way to the proper rough grade if required by the Commission.
- **4.1.5 Street Lighting:** Adequate public street lighting shall be provided at street intersections, where the Commission may direct such installation.

- 4.1.6 Traffic Control Devices: The developer shall be responsible for the cost and installation of any traffic control devices deemed necessary by the Commission or the State of Connecticut. Such devices shall meet the appropriate standards set forth in the manual on Uniform Traffic Control Devices for Streets and Highways. The developer shall bond such traffic control devices with other public improvements. Necessary state permits for work related to state highways shall be the responsibility of the developer and shall be coordinated through the office of the Building Inspector.
- **4.1.7 Traffic Analysis:** The Commission may require the applicant to submit a traffic analysis and/or a traffic signal warrant study prepared by a licensed traffic professional for any subdivision containing ten (10) or more lots.
- 4.2 DESIGN STANDARDS
- 4.2.1 Right-Of-Way (ROW) Width
- **4.2.1.1** Dead-end streets and local streets as defined shall have a minimum ROW of fifty (50) feet.
- **4.2.1.2** All other streets shall have a minimum ROW of sixty (60) feet.
- 4.2.2 Grades
- **4.2.2.1** Minimum one percent (1%);
- 4.2.2.2 The maximum road grade shall be eight percent (8%). The Commission may waive this requirement to a maximum of 10% where the applicant has demonstrated that such an increase will reduce the environmental impact of cutting the slope and further demonstrating that an alternate road route running more parallel to existing contours is inappropriate for reasons other than the need to obtain a greater number of building lots.
- 4.2.2.3 At intersections, maximum grade shall be four percent (4%) a minimum distance of one hundred (100) feet measured from the street line of the intersecting street.
- 4.2.2.4 All grade changes shall be connected by vertical curves. Vertical curves shall be designed in accordance with current Connecticut Department of Transportation (CONNDOT) standards for stopping, sight distance, sag and crest curves.
- 4.2.2.5 In order to meet the maximum grade requirements, an applicant may be permitted to cut and slope, provided that no cut exceeds twenty (20) feet measured from the existing elevation and provided that the average cut over 100 linear feet does not exceed fifteen (15) feet.

4.3 SIGHT LINES

To enhance traffic safety, all road intersections shall conform to the sightline requirements of the current CONNDOT standards.

4.4 MAXIMUM/MINIMUM LENGTH OF A CUL-DE-SAC/DEAD-END ROAD

- 4.4.1 The length of dead-end or cul-de-sac streets shall be based on the number of lots served by the street. The number of lots on all dead-end streets and those dead-end streets that may be extended in the future shall be determined by the Commission based on topography, soil conditions, traffic safety and fire safety provided:
- 4.4.1.1 The maximum length; shall not exceed 3,000 feet, or twenty-five (25) lots, whichever is less. The Commission may waive this requirement and allow a maximum length of 4,000 feet or thirty-five (35) lots, whichever is less, where such extension will result in additional open space, the preservation of natural features or flora and fauna or where the extension will result in improved traffic networking.
- There shall be a minimum length of 600 feet for a cul-de-sac road intersecting with Routes 189, 20, 10, 539, and 219, also East, Day, Silver, Loomis, Wells, Quarry, Notch, Canton, Hungary, Bushy Hill, Simsbury, Higley, Silkey, Canal, and other through roads as required by the Commission.
- 4.4.1.3 Dead-end roads shall terminate in a cul-de-sac. If the cul-de-sac is to be permanent, the right-of-way shall have a minimum diameter of one hundred and fifty-four feet (154) feet. The paved portion shall have a minimum diameter of one hundred thirty (130) feet and a grassed or landscaped center island seventy-eight feet (78 ft) in diameter shall be installed. See Section 3.1.4.4.

4.5 WIDTH OF PAVEMENT

- **4.5.1** Minimum pavement width of a cul-de-sac road shall be based on the length and number of lots served as follows:
- **4.5.1.1** Maximum length of eight hundred (800) feet serving a maximum of 12 lots with no structural drainage, minimum width of eighteen (18) feet shall be permitted.
- 4.5.1.2 Maximum length of 1,000 feet serving a maximum of 14 lots with no structural drainage, a minimum width of twenty (20) feet shall be permitted.
- **4.5.1.3** Maximum length of 1,400 feet serving a maximum of 18 lots, a minimum width of twenty-two (22) feet shall be permitted.

- **4.5.1.4** Maximum length of 1,800 feet serving a maximum of 24 lots, a minimum width of twenty-four (24) feet shall be permitted.
- **4.5.1.5** All roads in excess of 1,800 feet or 24 lots shall have a minimum pavement width of twenty-six (26) feet.
- 4.5.2 Local streets serving in excess of 60 lots shall have a minimum pavement width of twenty-eight (28) feet.
- 4.5.3 The Commission may permit a width of pavement that is no more than 4 feet less than the required outlined in Sections 4.5.1.2 through 4.5.1.5 above where:
 - The reduction will result in a visual, aesthetic and/or environmental improvement
 - The vertical and horizontal alignment of the roadway does not necessitate a wider pavement width, and
 - The reduction is supported by the Town Engineer.
- **4.5.4** In no event shall the paved width be less than 18 feet.

4.6 RADIUS AT STREET INTERSECTIONS

- 4.6.1 At right angle intersections, the minimum radius for dead-end streets shall be twenty-five (25) feet except that any street intersecting a major Town through road or new street designated a future through Town road or a State Highway shall be a minimum of thirty (30) feet.
- 4.6.2 At right angle intersections, the minimum radius for roads other than dead end roads shall be thirty (30) feet.
- **4.6.3** At the cul-de-sac, where the tangent of the road intersects, the radius of circle shall be fifteen (15) feet.

4.7 ALIGNMENT

Intersections shall be spaced a minimum of 400 feet apart measured from the points of intersection of the centerline of the right-of-way. Two streets intersecting opposite sides of a third street are to have the same points of intersection or else their centerlines are to be separated by a minimum of 400 feet on the third street.

The Commission may waive the minimum requirement to 200 feet where safety will not be compromised. Streets shall intersect at right angles unless otherwise approved by the Commission.

4.8 CURVATURE

4.8.1 Horizontal and vertical curves shall be designed on the following minimum design speeds:

•	Local or Dead-End Street	30 miles per hour
•	Collector Street	35 miles per hour
•	Other	40 miles per hour

4.8.2 All curves shall be designed using current CONNDOT standards. In no case shall the centerline radius on a horizontal curve be less than 150 feet.

4.9 DRAINAGE

- **4.9.1** Off-site drainage and the ultimate development of land within the watershed shall be taken into account in the design of any storm drainage system.
- **4.9.2** All storm drainage facilities shall be designed on the following storm return frequency criteria:
 - Street Drainage 10-year storm (minimum)
 - Ditches, Channels and Road Culverts 25-year storm (minimum)
- 4.9.3 An analysis of the 50-year and 100-year storms shall be routed through Channels and Road Culverts to ascertain if their respective stream encroachment lines would cause flood damage.
- 4.9.4 No storm drain system shall outlet into a natural watercourse, whether continually flowing or intermittent so as to exceed the capacity of the watercourse.
- 4.9.5 When the discharge will be onto private property, proper easements and discharge rights; shall be secured for the Town by the applicant from all affected property owners. Such easements and discharge rights shall be obtained before acceptance of any subdivision and drainage plan.
- 4.9.6 Streets shall be designed either with underground drainage systems, which shall Include, where appropriate, dry wells with over flow or, where conditions permit, surface drainage on non-through streets if adequate provision for erosion prevention is made.

4.9.7 Roadway under drains; shall be required by the Town Engineer if it is necessary to control groundwater in the sub grade. Under drains shall be constructed in accordance with the latest CONNDOT specifications and shall consist of six (6) inch perforated pipe. The under drain pipe shall be installed four (4) feet in back of the curb/edge of pavement and shall be set four (4) feet below the shoulder grade. The entire under drain trench shall be back filled with clean 1/4" stone to the ground surface. 4.9.8 Underground systems shall begin and terminate with catch basins, box structures, headwalls or flared-end sections built or installed in accordance with CONNDOT specifications. 4.9.9 Standard Type C catch basins shall be located: 4.9.9.1 At all grade sags; 4.9.9.2 Prior to intersections except where the grade declines to the intersection on both streets, in which case catch basins shall be located at the bisector of the curve; 4.9.9.3 Within 350 feet of the high point of vertical curves; 4.9.9.4 Then every 300 feet thereafter, except that these requirements may be waived where open drainage is permitted, as stated above. 4.9.10 A standard Type C catch basin or manhole shall be installed at: 4.9.10.1 All angle points or bends in the pipe; 4.9.10.2 Grade changes in the pipe; 4.9.10.3 Points of entry of pipes over ten (10) inches in diameter; or 4.9.10.4 Where no structures are otherwise required (e.g., across an open field), a manhole shall be constructed every 400 feet. 4.9.11 Legally drawn easements at least twenty-five (25) feet wide, flowage and slope rights shall be granted to the Town of Granby for all places where maintenance of drainage systems on private property is necessary. 4.9.12 Drainage pipe shall be reinforced concrete, unless otherwise specifically approved, of a size approved by the Commission but in no case less than

fifteen (15) inches in diameter.

- 4.9.13 Storm drainage pipes shall have a minimum pitch of one-half percent (0.5%). Variances may be granted by the Commission if pipes are designed with a minimum self-cleaning velocity of two (2) feet per second with the pipe flowing full. On grades exceeding ten percent (10%) and where uneven support is expected, drainage pipe shall be asphalt-coated, corrugated, metal pipe (ACCMP).
- **4.9.14** Wherever possible, street drainage pipe shall be laid at the edge of the paved portion of the road with a minimum cover of three (3) feet.
- 4.9.15 Work quality and specifications of materials, unless otherwise specified herein, shall conform to CONNDOT specifications or as specified by the Selectmen or their agent.
- 4.9.16 Private lot or foundation drains may be allowed to enter an underground or surface drainage system upon receipt of a written release from the owner of the property to be drained relieving the Town from any maintenance responsibility, which, therefore, shall rest with the owner. A cleanout or manhole where such drains come into an underground system and a valve to prevent the backflow of water into the private system will be required.
- **4.9.17** Box culverts, paved leak-offs, paved ditches, retaining walls and riprap shall be required where deemed necessary, constructed to CONNDOT specifications.

4.10 CURBING

Curbing of machine-formed bituminous or other approved material shall be installed on both edges of pavement, except where surface drainage is proposed; construction and materials shall conform with CONNDOT specifications

4.11 GUIDE RAILING

- 4.11.1 Where required, two (2) cable guide railings shall be provided on slopes greater than one (1) foot to four (4) feet or where otherwise required. Posts shall be a minimum of seven (7) inches by six and one-half (6.5) feet set three and one-half (3 1/2) feet deep and shall be connected by two (2) strands of three-quarter (3/4) inch wire cable.
- 4.11.2 Wood posts shall be impregnated with an insect and water repellent preparation paint and shall be spaced no more than ten (10) foot on center. Two (2) cable guide railings shall be installed in accordance with CONNDOT specifications. Other types of guide rails may be approved provided they meet CONNDOT specifications.

4.12 SLOPES

- **4.12.1** Except in residential areas with a maximum density of 80,000 square feet per family or less or where specifically excepted due to terrain conditions, the entire width of the right-of-way shall be graded with a cross slope from edge of pavement or top of curb of one quarter (1/4) inch per foot.
- Where exceptions to 4.12.1 above are allowed, the required cross slope shall be maintained for a minimum of five (5) feet with a maximum slope of one (1) foot vertical in four (4) feet horizontal maintained beyond that point to the edge of the right-of-way.
- 4.12.3 All portions of the right-of-way not taken up by street or sidewalk will be seeded to grass on a minimum of four (4) inches of loam.
- 4.12.4 Where side slopes outside the right-of-way steeper than one (1) foot vertical to four (4) feet horizontal are to be constructed, the Town shall be granted and conveyed an easement (slope rights) to maintain such slopes.
- 4.12.5 In no case shall slopes steeper than one (1) foot vertical to two (2) feet horizontal be constructed except in rock or definite ledge formation where the maximum allowable slope shall be four (4) feet vertical to one (1) foot horizontal. The Commission may waive this requirement following a report by the Town Engineer.
- **4.12.6** All such slopes, except those in rock or ledge formations, shall be seeded or turfed as soon as slopes are cleared of boulders.

4.13 PRIVATE RESIDENTIAL DRIVEWAYS

- **4.13.1** All driveways shall be designed to provide safe access onto existing or proposed streets. Where the driveway intersects with the street, adequate sight line shall be provided.
- 4.13.2 One driveway shall allow access to no more than two lots. If the proposed access will serve more than two lots, then the driveway shall conform to the requirements of a private street.
- 4.13.3 No driveway shall be permitted within 50 feet of the intersection of two existing or proposed streets, measured between the two nearest curb lines, except where unique conditions make any alternative access impossible or unsafe.

- 4.13.4 All driveways shall be located, designed and constructed in a manner, which prevents erosion and minimizes driveway drainage onto existing or proposed streets and/or abutting properties. Structural drainage facilities shall be incorporated into the driveway design and construction, as necessary, to prevent excessive drainage onto streets or abutting properties.
- 4.13.5 The average grade of a driveway shall be no more than 12%, measured from the street gutter line to the building served. No portion of a driveway shall contain a grade in excess of 15%.
- **4.13.6** The first 25 feet of the driveway, extending from the street line into the lot, shall have a maximum grade of 4%.
- **4.13.7** All driveways shall have a minimum centerline radius of 40 feet.
- **4.13.8** All driveways shall have a minimum width of 10 feet.
- 4.13.9 All driveways shall be paved with bituminous concrete from the edge of the street pavement to the edge of the street right of way. The Commission may require additional paving based on the location, environmental or geological concerns.
- 4.13.10 All driveways shall pitch up from edge of pavement for the same distance that the cross-slope is maintained with a pitch to coincide with the standard cross-slope of the right-of-way at its highest point.
- 4.13.11 Drainage swales or ditches shall not be plugged by construction of driveways. If a culvert under the driveway is required, the culvert shall have a minimum diameter of fifteen (15) inches.

4.14 SIDEWALKS AND WALKWAYS

- **4.14.1** When required, sidewalks will be located a minimum of one (1) foot inside the right-of-way and shall be a minimum of four (4) feet wide.
- 4.14.2 As required by the Commission, sidewalks shall be surfaced with cement or bituminous concrete, four (4) inches thick laid over eight (8) inches of high quality bank run gravel; side forms shall be used.
- **4.14.3** Construction of sidewalks will comply with CONNDOT specifications.
- **4.14.4** Walkways in dedicated rights-of-way through the interior of a subdivision shall be constructed as specified by the Commission.

4.15 CONSTRUCTION

4.15.1 **General**

- **4.15.1.1** Construction shall be done in four (4) steps; the Town Engineer shall be notified prior to beginning of each stage so that proper inspection can be made while work is in progress.
- 4.15.1.2 The developer shall furnish all lines, grades and construction stakes necessary for inspection and maintain them during construction so that proper checks can be made on the work; any deviation from plans; shall be specifically approved by the Town Engineer.
- 4.15.1.3 Upon completion of each step, a complete inspection shall be made; and if the work is approved, permission will be granted to proceed to the next step. Special importance shall be given to proper notification of the Town Engineer at the beginning or completion of each stage of work. Any work begun or completed without such notification shall be liable to rejection.
- **4.15.1.4** The Town Engineer or a designated agent shall have free access to the construction work at all times and shall be authorized to take material samples, cores and other tests as deemed necessary to determine compliance with these Regulations.

The Town Engineer may require the developer, at the developer's own expense, to have such tests made and certified by a registered professional engineer.

4.15.2 Step One: Clearing, Grubbing and Excavation

- 4.15.2.1 In clearing and grubbing, the surface of the roadway shall be cleared of trees, logs, stumps, brush, vegetation, rubbish and other perishable or objectionable matter. Stumps and roots within the roadway shall be removed. All materials shall be disposed of in accordance with State Law.
- **4.15.2.2** Desirable trees outside the edges of the roadway shall be preserved where possible, as determined by the Town Engineer or as designated by the Commission.

4.15.3 Step Two: Formation of Sub grade

- 4.15.3.1 All soft and yielding material and other portions of the sub grade which will not readily compact shall be removed, and all loose rock and boulders over five (5) inches in size shall be removed or broken off to a depth of not less than two (2) feet below sub grade. When ledge rock is encountered, this material shall be excavated to a depth of not less than two (2) feet below sub grade. Any materials removed shall be replaced with approved gravel and compacted.
- 4.15.3.2 The sub grade shall be thoroughly compacted with a power roller weighing not less than ten (10) tons. A vibratory roller may be used for compaction if its comp active effort is sufficient as determined by the Town Engineer.
- **4.15.3.3** Connecticut Department of Transportation CONNDOT specifications shall otherwise be followed.
- **4.15.3.4** All underground drainage and utilities within the roadway shall be accomplished in this step.
- **4.15.3.5** Approval to proceed will be given when a smooth, compacted sub grade surface is established, at proper grade, and drainage installed.
- 4.15.4 Step Three: Sub base and Base Courses
- 4.15.4.1 Base course shall consist of a minimum of ten (10) inches of processed gravel or broken stone, and the sub base a minimum of twelve (12) inches of high quality, bank run gravel, specifically approved by the Town Engineer.
- 4.15.4.2 Any base or sub base eight (8) inches in thickness or greater shall be laid in two (2) courses and compacted after each; all thickness referred to herein are after compaction.
- 4.15.4.3 The minimum depth of bank run gravel sub base shall be increased if the bearing capacity of the sub grade is found to be insufficient. The Town Engineer may require bearing capacity tests of the sub grade, at the developer's expense.
- **4.15.4.4** Construction methods shall be in accordance with CONNDOT specifications unless otherwise required by the appropriate Board.
- 4.15.5 Step Four: Surface
- **4.15.5.1** The finished surface of the road will be bituminous concrete, laid in two (2) courses which, when compacted, shall measure to a depth of three (3) inches.

- 4.15.5.2 The first course shall be a bituminous concrete binder two (2) inches thick when compacted; the second course shall be dense-grade bituminous concrete one (1) inch thick when compacted.
- 4.15.5.3 No bituminous surfacing work shall be performed between October 15 and April 15 except with consent of the Town Engineer.
- **4.15.5.4** CONNDOT specifications shall govern materials standards and installation procedures.

4.16 PRIVATE STREETS

- 4.16.1 The Commission may approve a proposed street as a permanent private street where the street will not serve the public as a whole nor function within the Town's overall comprehensive transportation policy. Private streets are designed solely for the convenience of the residential properties, which they serve, and to provide access to and from local and other public streets. Private streets shall carry less traffic than the connecting local street and shall conform with the overall orderly development of the area. In all cases the private street shall provide for the safe and convenient circulation of residential and emergency vehicles and be designed to accommodate a variety of support vehicles such as moving vans, refuse collection trucks, snowplows and delivery vehicles.
- **4.16.2** The subdivision plan shall show the street clearly labeled "Private Street".
- 4.16.3 The subdivision plan shall contain a note, approved by the Commission, which clearly states, "this Private Street will not be owned by the Town. All maintenance, repair and services, such as snow removal, sanding and sweeping of the street, will be the responsibility of the abutting landowners.
- 4.16.4 The subdivision plan shall contain notes, approved by the Commission, which are intended to inform the purchasers of lots that certain public services may be restricted from the private street. Services such as refuse and recycling pickup, school bus access and postal delivery may be identified, based on the scope of services offered and public policies in effect at the time of approval.

- 4.16.5 Private streets shall serve a maximum of six lots, except that the Commission may allow a maximum of 10 lots (an additional 4 lots) when five or more of the following conditions exist:
 - **1.** The average lot size is greater than 4 acres.
 - 2. The overall density (total acreage divided by the number of lots) is less than 1 lot per 6 acres.
 - 3. The frontage of the property is of a length and condition whereby additional lots; (above the maximum of 6) could be accessed by one or more additional driveways leading from the main road. By permitting the additional lots, the need for additional cub cut(s) off the main road will be eliminated.
 - **4.** The total road length is less than 1000 feet.
 - **5.** The average road grade is less than 8%.
 - **6.** No more than 20% of the total site is wetland and/or floodplain soils.
 - **7.** The road design, length, slope, width, etc. eliminates public safety and other concerns for the servicing of the additional lots.
 - **8.** The lots are spaced so that the majority of lots may be accessed within the first 500 linear feet of the private road.
 - **9.** At least 70 percent of the site is permanently preserved as open space.
 - **10.** No more than 40% of the total site contains slopes in excess of 20% that extend 50 liner feet or more.
- 4.16.6 The design, construction, security and completion sequence of the private street shall generally conform with those of public streets, with the following exceptions:
- **4.16.6.1** If the private street is contained within a separately deeded or privately owned street right of way, the width of the right of way shall be less than 50 feet.
- **4.16.6.2** The maximum grade of a private street shall not exceed 10%.
- **4.16.6.3** The centerline radius of horizontal curves shall be not less than 100 feet.
- **4.16.6.4** The minimum width of pavement shall be 18 feet.

- **4.16.6.5** Dead end streets shall terminate in a cul-de-sac or hammerhead, in accordance with a recommendation of the Town Engineer.
- 4.16.6.6 The storm drainage facilities shall be adequate and suitable for the site. The Commission may approve deviations from the standards contained in Section 4.9 upon a recommendation of the Town Engineer.
- 4.16.6.7 The Commission may modify the thickness of the roadway sub base and base courses, in accordance with a recommendation of the Town Engineer and based on the suitability of the existing site materials.
- 4.16.7 A written agreement, which provides for the permanent, cooperative, maintenance of the private street, by the owners of the lots that are served by the private street, shall be prepared and filed in the office of the Town Clerk. Such agreement may not be amended without the prior approval of the Commission. The agreement shall require that the developer is responsible for the maintenance and insurance of the private road and all associated costs. The developer's responsibility for the private road shall continue until such time that the ownership of the private road is transferred to the owners of the lots that are served by the private road, which shall not occur until such time that the Town deems the subdivision complete, as demonstrated by the final Should the developer fail to complete the required release of security. improvements, the Commission may use the security (bonded funds) to complete the remaining work. If more than 80% of the lots have been sold, then, at the discretion of the Commission and in cooperation with the homeowners, the security may be released to the owners of the lots served by the private street for the purpose of completing the required improvements.
- **4.16.8** Private streets shall not serve as a connector between two or more public streets.
- **4.16.9** Private streets shall be named in the same manner as public streets and in accordance with Section 3.1.2.
- **4.16.10** Street signs, identifying the private street, shall be displayed at the intersecting public street. Street signs shall be a maximum of 2 square feet.
- 4.16.11 The lot frontage requirement, outlined within Section 5 of the Zoning Regulations cannot be applied along the frontage of a Private Street, except as follows: Where a FRD subdivision is proposed. Where a rear lot subdivision is proposed.